REFERENCES 75

[23] R. K. Konoth, E. Vineti, V. Moonsamy, M. Lindorfer, C. Kruegel, H. Bos, and G. Vigna, "MineSweeper: An In-depth Look into Drive-by Cryptocurrency Mining and Its Defense," in *Proceedings of the 2018 ACM SIGSAC Conference* on Computer and Communications Security, CCS, pp. 1714–1730, 2018.

- [24] A. Romano, Y. Zheng, and W. Wang, "MinerRay: Semantics-aware Analysis for Ever-evolving Cryptojacking Detection," in 35th IEEE/ACM International Conference on Automated Software Engineering, ASE 2020, Melbourne, Australia, September 21-25, 2020, pp. 1129–1140, IEEE, 2020.
- [25] F. N. Naseem, A. Aris, L. Babun, E. Tekiner, and A. S. Uluagac, "MINOS: A Lightweight Real-time Cryptojacking Detection System," in 28th Annual Network and Distributed System Security Symposium, NDSS 2021, virtually, February 21-25, 2021, The Internet Society, 2021.
- [26] W. Wang, B. Ferrell, X. Xu, K. W. Hamlen, and S. Hao, "SEISMIC: SEcure In-lined Script Monitors for Interrupting Cryptojacks," in *Computer Security* - 23rd European Symposium on Research in Computer Security, ESORICS, vol. 11099, pp. 122–142, 2018.
- [27] J. D. P. Rodriguez and J. Posegga, "RAPID: Resource and API-based Detection Against In-browser Miners," in *Proceedings of the 34th Annual Computer Security Applications Conference*, ACSAC 2018, San Juan, PR, USA, December 03-07, 2018, pp. 313–326, ACM, 2018.
- [28] A. Kharraz, Z. Ma, P. Murley, C. Lever, J. Mason, A. Miller, N. Borisov, M. Antonakakis, and M. Bailey, "Outguard: Detecting In-browser Covert Cryptocurrency Mining in the Wild," in *The World Wide Web Conference*, WWW, pp. 840–852, 2019.
- [29] H. Okhravi, M. Rabe, T. Mayberry, W. Leonard, T. Hobson, D. Bigelow, and W. Streilein, "Survey of Cyber Moving Targets," Massachusetts Inst of Technology Lexington Lincoln Lab, No. MIT/LL-TR-1166, 2013.
- [30] F. B. Cohen, "Operating System Protection Through Program Evolution.," Computers & Security, vol. 12, no. 6, pp. 565–584, 1993.
- [31] S. Forrest, A. Somayaji, and D. Ackley, "Building Diverse Computer Systems," in *Proceedings. The Sixth Workshop on Hot Topics in Operating Systems (Cat. No.97TB100133)*, pp. 67–72, 1997.
- [32] M. Eichin and J. Rochlis, "With microscope and tweezers: an analysis of the Internet virus of November 1988," in *Proceedings. 1989 IEEE Symposium on Security and Privacy*, pp. 326–343, 1989.
- [33] J. Cabrera-Arteaga, O. F. Malivitsis, O. L. Vera-Pérez, B. Baudry, and M. Monperrus, "CROW: Code Diversification for WebAssembly," CoRR, vol. abs/2008.07185, 2020.

76 REFERENCES

[34] J. Cabrera-Arteaga, P. Laperdrix, M. Monperrus, and B. Baudry, "Multi-variant Execution at the Edge," in *Proceedings of the 9th ACM Workshop on Moving Target Defense*, MTD, pp. 11–22, ACM, 2022.

- [35] J. Cabrera-Arteaga, N. FitzGerald, M. Monperrus, and B. Baudry, "WASM-MUTATE: Fast and Effective Binary Diversification for WebAssembly," CoRR, vol. abs/2309.07638, 2023.
- [36] J. Cabrera-Arteaga, M. Monperrus, T. Toady, and B. Baudry, "WebAssembly Diversification for Malware Evasion," *Comput. Secur.*, vol. 131, p. 103296, 2023.
- [37] J. Cabrera Arteaga, "Artificial Software Diversification for WebAssembly," No. 2022:52 in TRITA-EECS-AVL, p. 112, 2022. https://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-317331.
- [38] A. Haas, A. Rossberg, D. L. Schuff, B. L. Titzer, M. Holman, D. Gohman, L. Wagner, A. Zakai, and J. F. Bastien, "Bringing the Web Up to Speed With WebAssembly," in *Proceedings of the 38th ACM SIGPLAN Conference* on *Programming Language Design and Implementation*, PLDI, pp. 185–200, 2017.
- [39] "Webassembly system interface." https://github.com/WebAssembly/WASI, 2021.
- [40] D. Bryant, "Webassembly Outside the Browser: A New Foundation for Pervasive Computing," in *Proc. of ICWE 2020*, pp. 9–12, 2020.
- [41] B. Spies and M. Mock, "An Evaluation of WebAssembly in Non-web Environments," in XLVII Latin American Computing Conference, CLEI 2021, Cartago, Costa Rica, October 25-29, 2021, pp. 1–10, IEEE, 2021.
- [42] E. Wen and G. Weber, "Wasmachine: Bring IoT up to Speed with A WebAssembly OS," in 2020 IEEE International Conference on Pervasive Computing and Communications Workshops, PerCom Workshops 2020, Austin, TX, USA, March 23-27, 2020, pp. 1-4, IEEE, 2020.
- [43] A. Hilbig, D. Lehmann, and M. Pradel, "An Empirical Study of Real-world WebAssembly Binaries: Security, Languages, Use Cases," in WWW '21: The Web Conference 2021, Virtual Event / Ljubljana, Slovenia, April 19-23, 2021, pp. 2696–2708, 2021.
- [44] L. Wagner, M. Mayer, A. Marino, A. S. Nezhad, H. Zwaan, and I. Malavolta, "On the Energy Consumption and Performance of WebAssembly Binaries across Programming Languages and Runtimes in IoT," in Proceedings of the 27th International Conference on Evaluation and Assessment in Software Engineering, EASE 2023, Oulu, Finland, June 14-16, 2023, pp. 72-82, ACM, 2023.